Y. In Skrunda, Latvia, where a radar station has been operational since 1971, epidemiological studies begun in 1989 have shown effects on organisms wherever they have bothered to look: impaired motor function, reaction time, memory and attention among schoolchildren; chromosome damage in cows; abnormal growth, shortened life span and impaired reproduction in duckweed plants; decreased thickness of growth rings in pine trees; premature aging of pine needles and cones; decreased pulmonary function in children; increased white blood cells, especially in children. Exposure levels did not exceed 10 microwatts per square centimeter anywhere (usually not exceeding 1 microwatt per square centimeter), and effects were demonstrable (relative to unexposed control populations) even where the exposure levels were less than a nanowatt per square centimeter. I beg to refer to copies of the Skrunda studies which have been published in the Science of the Total Environment, January 1996, upon which, marked with the letters "AFS 23", I have signed my name prior to the swearing hereof.

14. I have been provided with a copy of the Affidavit of **Thomas McManus**, sworn the 5th day of December 1997. I have studied said Affidavit, and in response thereto, I say and believe the following:

A. In paragraph 7 of his Affidavit, Dr. McManus states that no government nor any national or international health advisory authority has even suggested that the radiofrequency emissions from mobile phone base stations represent a hazard to health. I respectfully refer to my Exhibit AFS 14, containing statements from health and environmental authorities in Switzerland to the effect that certain adverse effects on health from a shortwave transmitter have been proven. Although this is not a cellular phone base station, and the broadcast frequency differs, nevertheless the levels of

exposure of the population are similar, and they are definitely "non-thermal" levels.

Further, the ANSI/IEEE C95.1 1992 standard, to which Dr. McManus refers, has been criticized on health grounds by every health and safety agency in the United States which commented on its proposed adoption as a national standard by the Federal Communications Commission. The U.S. Environmental Protection Agency recommended "against adopting the 1992 ANSI/IEEE standard because it has serious flaws that call into question whether its proposed use is sufficiently protective of public health and safety." The E.P.A. further said that "The 1992 ANSI/IEEE conclusion that there is no scientific data indicating that certain subgroups of the population are more at risk than others is not supported by NCRP and EPA reports." The E.P.A. further said that "The thesis that the 1992 ANSI/IEEE recommendations are protective of all mechanisms of interaction is unwarranted because the adverse effects level in the 1992 ANSI/IEEE standard is based on a thermal effect." The Food and Drug Administration (FDA), in its comments, said "In our opinion, it is unclear what types of biological effects and exposure conditions are addressed by the standard. . . We do not believe this standard addresses the issue of long-term, chronic exposures to RF fields." The FDA pointed to animal studies suggesting an association between chronic low level exposures and cancer. The National Institute for Occupational Safety and Health (NIOSH) was "concerned about the lack of participation by experts with a public health perspective in the IEEE RF standards setting process. For example, epidemiology studies were categorically rejected as not useful in the process of setting the ANSI/IEEE C95.1-1992 limits." NIOSH also complained that "The exposure levels that would be set by the standard are based on only one dominant mechanism--adverse health effects caused by body heating. Nonthermal biological health effects have been reported in some studies and research continues in this area." The Occupational Safety and Health Administration (OSHA)

complained that the ANSI recommendations focused exclusively on exposure levels, "almost to the exclusion of other RF protection elements which must be considered in developing a comprehensive safety and health program [such as] training, medical monitoring, protective procedures and engineering controls, signs, hazard assessments, employee involvement, and designated responsibilities for program implementation." I beg to refer to copies of said comments by EPA, FDA, NIOSH, and OSHA, upon which marked with the letters "AFS 24", I have signed my name prior to the swearing hereof.

B. In paragraph 9, Dr. McManus states that ANSI/IEEE SCC-28 is composed of members covering a wide range of technical, scientific and medical disciplines. I beg to refer to a copy of the Ballot Summary of May 14, 1991 for the adoption of the ANSI/IEEE standard by the SCC-28 Committee, upon which, marked with the letters "AFS 25", I have signed my name prior to the swearing hereof. The voting membership was overwhelmingly dominated by military and industrial interests, to the total exclusion of the general public and the health care community. Of the three health and safety agency representatives on the voting committee, two voted "no" on the adoption of this standard.

C. On November 10, 1997, for reasons set forth above in paragraphs 14A and 14B and elsewhere in this Supplemental Affidavit, I did file a petition on behalf of the Cellular Phone Taskforce and the class of individuals in the United States who are electrically sensitive or otherwise susceptible to radiofrequency radiation, in the United States Court of Appeals for the Second Circuit in New York, challenging the validity of the guidelines recently adopted by the Federal Communications Commission, as stated by Dr. McManus in paragraph 18 of his Affidavit. The Communication Workers of America, concerned about its members' occupational health, also filed such a petition. I did not file a petition on November 12, 1997, contrary to Dr. McManus's assertion in paragraph 17.

D. In paragraph 19, Dr. McManus asserts that I am a supporter of "groups that wish to see a stop to all further growth in telecommunications." This is an unsupported statement. I am not aware of the existence of any such groups. Dr. McManus further challenges my objectivity. I respectfully point out that, unlike the great majority of individuals who voted on the ANSI/IEEE standard, I have no financial or political interest at stake, either for or against telecommunications technology. Dr. McManus accurately stated my position in paragraph 16 of his Affidavit, where he quoted the newsletter which I edit: The Cellular Phone Taskforce wishes to halt the expansion of wireless communication <u>because it has become an environmental disaster</u>. In addition to all of the evidence supporting this opinion which is already contained in this Supplemental Affidavit, and in my Affidavit of November 7, 1997, I am attaching a copy of a report by Kathleen P. Hawk, dated April 17, 1996, upon which, marked with the letters "AFS 26", I have signed my name prior to the swearing hereof. Effects on wildlife feature prominently in this report. I note that I am in touch with the "Doe" family in this report, and that approximately two months ago they moved their family and their entire dairy herd to a remote part of Michigan where there are no cellular towers within about 40 miles. They tell me that within two days of their arrival at their new home in Michigan, their cows began chewing their cud again, which they had not been doing; their cats, which still have tumors all over their bodies, nevertheless woke up out of their lethargy and began running around like normal cats; and they themselves began to feel a new lease on life.

E. In paragraph 20, Dr. McManus challenges my statement that there is not a threshold below which there is no effect. I beg to refer to paragraph 13V of this Supplemental Affidavit, in which I respond to the same issue raised by Drs. Bailey and Erdreich.

F. In paragraph 20, Dr. McManus claims that every person and object on the earth emits 0.003 watts per square meter, or 0.3 microwatts per square centimeter, of microwave radiation. Dr. Neil Cherry, in his March 1996 (Second Report) "Potential and Actual Adverse Effects of Cellular Microwave Radiation", points out that this is a gross distortion of the facts because most of this black body radiation is actually in the far infrared portion of the spectrum, and that the black body irradiance in the whole band from 100 to 1000 MHz, which includes the frequencies of broadcast for the proposed Esat base station, is really about 0.0000092 microwatts per square centimeter (p. 7), or more than 10,000 times less than the calculated exposure of the public from the base station. I would add to this my own observation that black body radiation is neither coherent, pulsed, modulated, polarized, nor focused at a particular frequency, and that the black body irradiance at any particular broadcast channel, assuming a channel width of about 1 MHz, is more than 1,000,000 times less than the exposure of the public from the cellular base station.

G. Dr. McManus refers to several studies having to do with cancer, in paragraph 21 of his Affidavit. Contrary to his assertion, the study by Savitz and Calle, "Leukemia and occupational exposure to electromagnetic fields: review of epidemiologic surveys," Journal of Occupational Medicine 29(1): 47-51, 1987, which I cited in my Affidavit of November 7 and in my book, Microwaving Our Planet, deals with occupational exposure to electromagnetic fields including microwaves, and not overhead powerlines.

Dr. McManus next discusses the Lilienfeld 1978 study of the personnel of the American Embassy in Moscow. I beg to refer to my discussion of the Lilienfeld study in paragraph 13S(b) of this Supplemental Affidavit, above.

Dr. McManus next discusses a study by Dolk et al. (1997), of the relationship between cancer incidence and proximity

to FM and television broadcast towers in the United Kingdom. Contrary to Dr. McManus' assertion, these authors did not find no relationship of cancer to exposure. Indeed, they stated specifically on page 16 of the study that "there is evidence of a decline in leukemia risk with distance from transmitters." These authors had previously found a significant correlation of adult leukemia with **nearness** to a broadcast tower ("Cancer incidence near radio and television transmitters in Great Britain. I. Sutton Coldfield transmitter", Am. J. Epidemiol. 1997; 145:1-9), and this followup study was designed to extend the epidemiological work to 20 other broadcast towers throughout the United Kingdom. The most significant correlations with adult leukemia were found for towers that had FM antennas and TV antennas colocated, as is also the case at Sutton Coldfield.

H. In paragraph 21, Dr. McManus compares the Easky transmitter, which he says has an equivalent radiated power (erp) of 250 watts, with commercial broadcast transmitters that have erps of up to 1,000,000 watts. This is a misleading comparison because the exposure of the population from any transmitter is inversely proportional to the square of the distance from it. Therefore a 250 watt transmitter at a distance of 20 meters gives a greater radiation exposure than a 1,000,000 watt transmitter at 1½ kilometers. I respectfully note that Exhibit DD4 of the Affidavit of Declan Drummond gives an effective isotropic radiated power (EIRP) for the proposed Easky transmitter of 2040 watts. This would give a greater radiation exposure at 60 meters than a 1,000,000 watt transmitter 1½ kilometers away. I note that the proposed Easky transmitter will be located 60 meters from the Easky National School which the Plaintiffs attend.

15. I have been provided with a copy of the Affidavit of Philip W. Walton, sworn the 15th day of December 1997. I have studied said Affidavit, and in response thereto, I say and believe the following:

A. In paragraph 7 Dr. Walton makes a comparison of cellular base station antennas with microwave ovens. I disagree with him that such a comparison indicates the base station's safety for two reasons. First, the energy in a microwave oven is confined in a box and is not designed to radiate outwards. Second, a microwave oven is never in use for more than a few minutes per day, whereas a cellular phone base station is on all the time. Further, whether the radiated power of the base station is 252 watts, as Dr. Walton says, or 2040 watts, as Mr. Drummond says, it is of a similar magnitude to the 600 to 800 watts of a microwave oven. Effectively, what Esat Digifone is proposing to do is to place a microwave oven on top of a mast some 25 meters high, turn it on with its door open, and leave it on 24 hours a day, creating a hazardous situation.

B. In paragraphs 8 and 9, Dr. Walton says that microwave radiation is not energetic enough to disrupt molecules within the body. The work by Belyaev et al., and by Grundler et al., described in paragraph 13V of this Supplemental Affidavit, and in Exhibits AFS 19 and AFS 20, has proven otherwise, both by quantum mechanical considerations, and by experiments demonstrating reproducible direct effects of microwave energy on such critical biological molecules as DNA.

C. In paragraph 10, Dr. Walton compares the power of a 300 watt cellular transmitter with a TV transmitter of 800,000 watts. I beg to refer to my response to Dr. McManus in paragraph 14H of this Supplemental Affidavit, on this issue.

D. In paragraph 11, Dr. Walton claims that the maximum effect on the human body occurs in the frequency range from 10 MHz to 400 MHz where the wavelength is similar to the human body height. I disagree with this statement, because the human body has parts, all of which are of different sizes and resonate at different frequencies. At the broadcast

frequency of the proposed Esat base station, 925 to 960 MHz, the wavelength is about 32 centimeters, and body parts approximately half this size, or about 16 centimeters in diameter, will resonate and selectively absorb this frequency. Wavelengths of this size will in particular have a disproportionate impact on children, because their bodies are smaller. I also note that reports to the Cellular Phone Taskforce indicate that for the higher frequencies (1.9 GHz) of PCS antennas, which have a wavelength of about 16 centimeters, the eyes and the testes are impacted severely.

E. In paragraph 13 Dr. Walton says that radiation from Esat transmitters only penetrates the top few centimeters of tissue. I respectfully note that the cortex of the brain is only a few centimeters below the surface of the head. However, I disagree with Dr. Walton's statement, and note, in support of my opinion, that microwave ovens use even shorter wavelengths, i.e. 2450 MHz, and not FM and TV frequencies, to cook food rather rapidly, and that if such radiation did not penetrate biological tissue, these ovens would not function.

F. In paragraph 13 Dr. Walton says that powerful radio transmitters have been with us for more than fifty years, and that any significant health effects would have shown up by now. I beg to refer to my discussion of the shortwave transmitter at Berne, Switzerland, paragraph 130 of this Supplemental Affidavit and Exhibits AFS 11, AFS 12, AFS 13, and AFS 14. That transmitter has been operational for 59 years, the people living near it have been complaining of health effects for at least 25 years, and the Swiss government has finally admitted the health effects are proven. Dr. Walton's statement that "the possibility of any significant health effects have receded as more refined studies have been made" is unsupported.

G. Dr. Walton's statement in paragraph 14 that "there is no clear scientific evidence to suggest the existence of

or a causal link between any non-thermal effects of microwave radiation and adverse health effects in human beings" is also unsupported. The international standards he refers to in paragraphs 15 through 23 are thermal standards and do not protect against any of the non-thermal effects for which I have provided evidence in my Affidavit and Supplemental Affidavit.

H. In paragraph 24, Dr. Walton says that the maximum power density from the proposed Esat base station will occur at a distance of 186 meters from the mast. This is true only at ground level on perfectly flat terrain. On the second or third floor of a neighboring school, for example, exposure would increase significantly, as would the exposure to a person walking or living on a nearby hill. My calculations of the maximum exposure to people from this station are contained in my answer to the Affidavit of Mr. Drummond.

I. It is my understanding that the existing Garda transmitter at the same site as the proposed Esat base station, which Dr. Walton refers to in paragraph 24(c), is a push-to-talk transmitter that does not send out a signal when not in use. Such a push-to-talk transmitter does not represent the kind of health hazard posed by a cellular phone base station which transmits 24 hours a day.

J. In his response to my Affidavit, Dr. Walton criticizes my citation of Shandala et al. (1979) in connection with electrical sensitivity. However, I did not cite Shandala et al. in connection with the estimates of 2%-15% of the population, as Dr. Walton implies. For these estimates I cited Sadchikova (1960, 1974), Knave (1992), Leitgeb (1994), Szuba and Szmigielski (1994), Hanson (1995), Klimkova-Deutschova (1974), and Firstenberg (1996).

K. Dr. Walton disputes my assertion in paragraph 4 of my Affidavit that base station radiation is highly penetrative.

Here he repeats his claim that this radiation only penetrates the top centimeter of tissue, and also that FM and TV antennas have been with us for 50 years without ill effects. I beg to refer to my response in paragraph 15E, above.

L. In his response to paragraph 5 of my Affidavit, Dr. Walton says that the ICNIRP Guidelines specifically take into account pulsing, modulation and polarisation. In fact these Guidelines address resonance, but not pulsing, modulation, and polarisation, except very inadequately. The IRPA Guidelines, which the ICNIRP endorsed, give suggested limits for the average value of a pulse, but do not even suggest a limit for the peak value. Polarisation is not mentioned anywhere. The IRPA Guidelines specifically state that "The basic limit above 10 MHz (0.4 W/kg for occupational exposure or 0.08 W/kg for the general public) protects against thermal hazards." (emphasis added). These Guidelines do not claim to protect against non-thermal hazards.

M. In his response to paragraph 6 of my Affidavit, Dr. Walton challenges my claim that there is not a threshold below which there is no effect. I beg to refer to paragraph 13V of this Supplemental Affidavit, and Exhibits AFS 19, AFS 20, and AFS 21.

N. Dr. Walton refers also to the study on cancer around broadcast towers by Dolk et al. I beg to refer to paragraph 14G of this Supplemental Affidavit.

O. In his response to paragraph 7 of my Affidavit, Dr. Walton asserts that any environmental catastrophe from microwaves would have been seen already during the last 50 years. In fact there have been abundant warnings of this, not just for 50 years, but for 70 years, as reviewed in my book, Microwaving Our Planet. But the major change which began

to occur on the earth only a year and a half ago is this: for the last 50 years and more, radiofrequency transmitters have been few in number, and most frequently located on hilltops away from populated areas, and on top of skyscrapers in cities. Beginning about a year and a half ago, some $70 billion in the United States and equivalent amounts of money in the rest of the world have been invested in suddenly saturating every square inch of this earth with microwaves of a frequency, power, and type of modulation that almost no one has ever been exposed to before. This has occurred on a permanent, full-time basis without respite. Antennas are coming to apartment building rooftops by the thousands, and they are coming to lampposts, traffic lights, church steeples, and school yards. They are coming to city parks and to wilderness areas. And to make sure that every square inch of the earth is covered, international consortiums are raising money to float fleets of hundreds of satellites 300 miles above the earth, and more fleets of blimps 13 miles above metropolitan areas. I am warning of catastrophe because there is evidence of it, and because conditions are suddenly not the same as they have been for the last 50 years.

P. Dr. Walton relies on the studies by Dolk et al. (1997) and Lilienfeld (1978) in refuting all the evidence in my book, Microwaving Our Planet. I have dealt with those two studies already, and refer to paragraphs 13S(b) and 14G of this Supplemental Affidavit. In response to Dr. Walton's claim about the unrepresentative nature of the authorities I cite, I refer to paragraphs 13A and 13C of this Supplemental Affidavit.

Q. In his response to paragraph 8 of my Affidavit, Dr. Walton says that I do not support the reports of symptoms referred to by reference to any relevant authority. I would respectfully ask him if citizens are irrelevant? It is the hundreds of citizens who are contacting our organization--those few who have managed to find out about what we are

doing, because we are doing this with no money and no advertising--it is these citizens of many countries all over the world, many of whom are desperately ill, who are our authorities. Their symptoms are all the same. The single most common symptom, even in those who are less sensitive to the radiation, is insomnia. The second most common symptom is eye problems, which may be only a sudden deterioration of vision, but which very commonly feels like a pressure from behind the eyeball. A third, very common symptom, is a peculiar kind of bronchitis, or hoarseness, or sinusitis, which will not go away. A fourth, very common symptom, is pain specifically in the soles of the feet, which may be relieved by the wearing of leather or other conducting soles, and not rubber, insulating soles on one's feet. Since this radiation penetrates every part of the body, and since it agitates the entire nervous system, every part of the body has the potential to suffer, and therefore the entire list of possible symptoms is long. Spontaneous nosebleeds is not a common symptom, but I regard the association as proven, because this too disappears with avoidance of exposure. The enormous body of literature, also cited to a large extent in my book, documenting radio wave sickness in Eastern Europe and the former Soviet Union, has served as an excellent reference for us, but ultimately our authorities are our growing membership.

R. Dr. Walton claims that my views expressed in paragraph 9 of my Affidavit are unsupported by any independent scientific research or authorities. I beg to refer to page 47 of Microwaving Our Planet, on which I cite authorities for every one of my assertions in this paragraph.

S. In his response to paragraph 10 of my Affidavit, Dr. Walton says he does not accept that the agencies establishing guidelines are closely linked with the telecommunications industry. I beg to refer to the list of voting members of

the IEEE SCC-28 Committee, Exhibit AFS 25 of this Supplemental Affidavit. Dr. Wayne Overbeck, Professor of Communications at California State University, Fullerton, has stated, "The ANSI committee that adopted the new standard was criticized by some public health researchers for being excessively influenced by industry groups with a financial stake in the status quo." ("EMR and Weak Signal DXing: The FCC May Change the Rules", Proceedings of the 27th Conference of the Central States VHF Society, American Radio Relay League, 1993, p. 28). Ivan Shulman, M.D., has said, "In developing C95.1-1992, Subcommittee 28 of the IEEE Standards Coordinating Committee chose to ignore the significant volume of highly credible scientific evidence on athermal effects. Even worse, the ANSI/IEEE guidelines appear to have become a refuge for special interests for whom the very existence of health problems at athermal levels of exposure would have important (and costly) consequences." (Comments of Members of the ARRL Bio-Effects Committee, ET Docket No. 93-62, Federal Communications Commission, January 10, 1994, p. 7). Dr. Mark J. Hagmann, Professor of Electrical and Computer Engineering at Florida International University, Miami, Florida, has said, "It is my opinion that the standard designated ANSI/IEEE C95.1-1992 is invalid because of the conflict of interest among the leadership of the committee which prepared it." (Comments on ET Docket No. 93-62 Before the Federal Communications Commission, January 10, 1994, p. 4). The ANSI/IEEE C95.1 standard is cited as an authority by every RF standard-setting body in the world, including ICNIRP and NRPB.

16. I have been provided with a copy of the Affidavit of Declan Drummond, sworn the 12th day of December 1997. I have studied said Affidavit, along with the accompanying Exhibits, and in response thereto, I say and believe the following:

A. In Exhibit DD4, a report by J. McAuley of Forbairt calculated the effective isotropic radiated power to be expected

from the proposed Esat base station (p. 5), and from this value for the EIRP calculated maximum power density to be expected at various distances from the base station (p. 6). I believe that the calculated power density significantly understates the potential actual exposure at these distances. I beg to refer to a copy of power density calculations from Sprint "Technical" material, upon which, marked with the letters "AFS 27", I have signed my name prior to the swearing hereof. The Sprint formula contains an additional factor "r", Ground Reflection Factor, which is given as 2.56. Using only the formula given by Forbairt,

$$\text{Power Density} = \text{EIRP}/4\pi d^2$$

gives a power density at 61 meters of 0.0044 mW/cm^2 (not 0.0022 mW/cm^2), and a power density at 121 meters of 0.0011 mW/cm^2 (not 0.00055 mW/cm^2). Including the additional Ground Reflection Factor of 2.56 brings the actual exposure at 61 meters to 0.011 mW/cm^2, and the actual exposure at 121 meters to 0.0028 mW/cm^2. I beg to refer to copies of engineering reports showing calculated power densities at various distances from 3 cell sites in Seattle, Washington, upon which, marked with the letters "AFS 28", I have signed my name prior to the swearing hereof. Calculated exposures at 61 meters (200 feet) from these base stations varied from 9 to about 20 microwatts per square centimeter (0.009 to 0.020 mW/cm^2), and exposures at 121 meters (400 feet) varied from 3.4 to 8.4 microwatts per square centimeter (0.0034 to 0.0084 mW/cm^2). I note that ground reflection factors were used by these engineers.

However, considerable evidence exists that actual exposure to human beings may be much higher than these calculated values. The IRPA Guidelines, as stated in the second Forbairt report, DD5, acknowledge that contact currents greater than 50 mA in the human body can produce burns. The IEEE C95.1-1991 Standard places the threshold for RF burns somewhat higher, at 100 mA.

On page 29, the IEEE Standard states that the Maximum Permissible Exposure (MPE) for controlled environments for electric field strengths could produce induced currents in a standing adult at 3 MHz which is up to 610 mA, or more than 6 times the threshold established by IEEE for RF burns. As the MPE for uncontrolled environments is supposed to include a safety factor of 50 according to both the IEEE and the IRPA Guidelines, therefore the power density limits would need to be set at least 6.1^2 x 50 or about 1860 times lower than presently set limits for controlled environments, or 370 times lower than presently set for uncontrolled environments, to protect the general population under all circumstances against thermal burns from induced currents. I beg to refer to a copy of the relevant pages from the IEEE Standard, upon which, marked with the letters "AFS 29", I have signed my name prior to the swearing hereof. The problem of induced currents is not confined to a frequency of 3 MHz. I beg to refer to a copy of a paper by Tofani et al., upon which, marked with the letters "AFS 30", I have signed my name prior to the swearing hereof, in which large induced foot-currents in humans were measured up through the entire FM frequency range. I beg to refer to the Comments of Professor Mark J. Hagmann, upon which, marked with the letters "AFS 31", I have signed my name prior to the swearing hereof, in which he points out that the upper frequency limit for induced currents is inappropriate, and that the basis for such limit comes from the limitations of certain measuring devices, and does not reflect an absence of high induced currents in human beings at higher frequencies.

In addition, reflection can increase exposure far beyond the factor of 2.56 used by Sprint and others. I beg to refer to a copy of a paper by Om Gandhi, who was Co-Chair of IEEE Standards Coordinating Committee 28 at the time of the adoption of the current IEEE Standard, upon which, marked with the letters "AFS 32", I have signed my name prior to the swearing hereof. He shows that reflection from flat surfaces can enhace the Specific Absorption Rate (SAR) up to about 7 times, and that

reflection from corner surfaces can enhance the SAR up to an additional 27 times. Table 1 demonstrates that at resonance in electrical contact with ground plane, in a 90^{o} corner reflector, the SAR can actually be increased from 0.27 W/kg to 116.48 W/kg, or about 430 times. Metallic objects worn by a person can also increase exposure to parts of the body. I beg to refer to a paper by Davias and Griffin, upon which, marked with the letters "AFS 33", I have signed my name prior to the swearing hereof, which demonstrates that metal eyeglass frames can increase exposure of the eyes an additional 100 times. Thus to protect the eyes--from a thermal hazard only--would require reducing allowable power density levels by a factor of 370 (for induced currents) x 430 (for reflection and resonance) x 100 (for the metal eyeglasses), or 16,000,000, i.e. down to levels of less than 0.1 nW/cm^2 (0.1 nanowatt per square centimeter). No studies have been done on the enhancement factors caused in other parts of the body by other metallic objects, such as fillings in teeth, underwire bras, zippers, hearing aids, prostheses, rods, plates and screws installed surgically, etc.

This evidence supports my opinion that an extraordinary variation in actual exposure to microwaves and radio waves among the general population is bound to result in injury and sensitization of a significant portion of them unless maximum permissible exposures are reduced by a factor of at least one million.

B. In his Affidavit, Mr. Drummond generally speaks of compliance with existing RF emission standards, the requirement of his company's license that 80% coverage be provided in a timely fashion, and the financial loss which would accrue to the company were this to be prevented. It is my respectful opinion that damage to the lives and futuresof the Plantiff children which may be expected to result from the operation of the proposed base station 60 meters from their school must be an important consideration. I disagree with Mr. Drummond's

statement in paragraph 27 of his Affidavit that the undertakings offered by the Plaintiffs in their Affidavits are "virtually valueless", in light of the danger to Plaintiffs' lives which I believe this proposed cellular base station would pose.

17. I have been provided with a copy of the Affidavit of Gay McCarron, sworn the 8th day of December 1997. In response thereto, I say and believe the following: Mr. McCarron's Affidavit states that the proposed cellular base station will comply with all applicable RF exposure guidelines. I have provided evidence throughout this Supplemental Affidavit in support of my opinion that such guidelines are flawed and do not protect the population adequately against danger or harm to their health from exposure to radiofrequency and microwave radiation.

18. Regarding the proposed Esat cellular phone base station at Easky Garda Station, my conclusion, which is based upon the weight of the scientific literature; upon the important recent studies in Berne, Switzerland and in Skrunda, Latvia; and upon the adverse effects on the health of masses of people around the world from the new digital technologies, which are being reported on a daily basis to the Cellular Phone Taskforce, is that exposure of the Plaintiff children for a period of even one year to eighteen months would have harmful effects on their health, and on their growth and development, and that such effects would be immediately manifest even within the first few weeks after the transmitters were turned on.

SWORN before me in the State)
of New York, County of Otsego)
United States of America,)
this 11th day of January, 1998)
)
Leonara Lobdell)
01L02256800 Exp 6-20-99)
NOTARY PUBLIC)
STATE of New York)
COUNTY of Otsego)
UNITED STATES of AMERICA

Arthur Firstenberg
Arthur Firstenberg

Exhibits

AFS 1. Frey (1982), "From the laboratory to the courtroom", in Risk/Benefit Analysis: The Microwave Case, Steneck.

AFS 2. Letavet and Gordon (1960), The Biological Action of Ultrahigh Frequencies, Academy of Medical Sciences, Moscow.

AFS 3. Soviet Research on the Neural Effects of Microwaves, Report 66-133, Aerospace Technology Division, Library of Congress, 1966.

AFS 4. Healer (1970), "Review of Studies of People Occupationally Exposed to Radio-Frequency Radiation", in Biological Effects and Health Implications of Microwave Radiation, Cleary, U.S. Dept. of HEW.

AFS 5. Dodge, C. (1970), "Clinical and Hygienic Aspects of Exposure to Electromagnetic Fields", Ibid.

AFS 6. Glaser and Dodge (1982), "Comments on occupational safety and health practices in the USSR and some East European countries", in Risk/Benefit Analysis: The Microwave Case, Steneck.

AFS 7. Dumanskiy et al. (1973, 1976, 1978, 1982), 4 papers:

"Dependence of the Functional Activity of Liver Mitochondria on Microwave Radiation", JPRS 72606, 1976.

"Investigation of the Activity of Some Enzymatic Systems in Response to a Superhigh Frequency Electromagnetic Field", JPRS 72606, 1978.

"Meteorological Radar as Source of SHF Electromagnetic Field Energy and Problems of Environmental Hygiene", JPRS 84221, 1982.

"The Biologic Action and Hygienic Significance of Electromagnetic Fields of Superhigh and Ultrahigh Frequencies in Densely Populated Areas", in Biologic Effects and Health Hazards of Microwave Radiation, Czerski, 1973.

AFS 8. Mann and Roschke (1996), "Effects of Pulsed High-Frequency Electromagnetic Fields on Human Sleep", Neuropsychobiology 33:41-47.

AFS 9. Anderson et al. (1996), "A Cognitive-Behavioral Treatment of Patients Suffering From 'Electrical Hypersensitivity'", JOEM 38:752-758.

AFS 10. Bergqvist and Vogel (1997), Possible health implications of subjective symptoms and electromagnetic fields, European Commission.

AFS 11. Altpeter et al. (1995), Study on Health Effects of the Shortwave Transmitter Station of Schwarzenburg, Berne, Switzerland, Study No. 55, Swiss Federal Office of Energy.

AFS 12. Altpeter et al. (1997), "Do radiofrequency electromagnetic fields cause sleep disorders?", Abstract No. 351.

AFS 13. Stark et al. (1997), "Absence of chronic effect of exposure to short-wave radio broadcast signal on salivary melatonin concentrations in dairy cattle", J. Pineal Res. 22:171-176.

AFS 14. Letter from BUWAL, 29 May 1996.
Opinion of the Working Group "Nonionizing Radiation", March 1996.
Letter from Dr. Abelin, 8 December 1997.

AFS 15. Djordjevic et al. (1997), "Studies on the Hematologic Effects of Long-Term, Low-Dose Microwave Exposure", Aviation, Space, and Environmental Medicine 48:516-518.

AFS 16. Lilienfeld (1978), Evaluation of Health Status of Foreign Service and Other Employees From Selected Eastern European Posts, National Technical Information Service, PB 288-163, 11 tables

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